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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/808,030

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EXAMINER

SUTHERS, DOUGLAS JOHN

ART UNIT

PAPER NUMBER

2615

MAIL DATE

DELIVERY MODE

05/13/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/808,030	<b>Applicant(s)</b> KUSHIDA, KOJI	
	<b>Examiner</b> DOUGLAS SUTHERS	<b>Art Unit</b> 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615.

### ***Claim Objections***

2. Claim 11 is objected to because of the following informalities: The claim recites “and changes the orientation of the sound receiving point a second direction”, which should probably read “and changes the orientation of the sound receiving point **to** a second direction”. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagamitsu (US 5467401).

5. Regarding claim 1, Nagamitsu discloses a reverberation apparatus for creating an acoustic effect of an acoustic space which is arranged with a sound generating point for generating a sound and a sound receiving point for receiving the sound which travels from the sound generating point to the sound receiving point through sound ray paths within the acoustic space, and for applying the created acoustic effect to an audio signal representative of the sound generated from the sound generating point, the reverberation apparatus comprising:

a storage section (figure 2, item 12, volume distribution) that stores a directional characteristic representing a directivity of the generated sound at the sound generating point;

a position indicating section that indicates a position of the sound generating point (12, source position) and a position of the sound receiving point (13, receiving point position) within the acoustic space;

an orientation control section (12, source orientation) that changes an orientation of the sound generating point within the acoustic space when the position indicating section indicated change of either of the position of the sound generating point and the position of the sound receiving point (changes require recalculation of physical layout for correct Impulse response calculation);

an impulse response determining section (21) that determines an impulse response for each of the sound ray paths along which the sound emitted from the sound generating point travels to reach the sound receiving point, in accordance with the

directional characteristic of the generated sound stored in the storage section and the orientation of the sound generating point changed by the orientation control section; and

a calculation section (25) that performs a convolution operation between the impulse response determined by the impulse response determining section and the audio signal representing the sound generated from the sound generating point so as to apply thereto the acoustic effect.

6. Regarding claim 2, Nagamitsu discloses wherein the orientation control section identifies a direction (incident direction) to a given target point (wall section or receiving point) from the sound generating point at the position indicated by the position indicating section, and changes the orientation of the sound generating point to the identified direction from the sound generating point to the target point (column 6).

7. Regarding claim 3, Nagamitsu discloses wherein the orientation control section sets the target point to the sound receiving point (as above) in accordance with an instruction by the user.

8. Regarding claim 4, Nagamitsu discloses wherein the orientation control section identifies a first direction (incident direction) to a given target point (wall section or receiving point) from the sound generating point at the position indicated by the position indicating section, and changes the orientation of the sound generating point to a second direction making a predetermined angle with respect to the identified first

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direction (changes require recalculation of physical layout for correct Impulse response calculation).

9. Regarding claim 5, Nagamitsu discloses wherein the orientation control section sets the target point to the sound receiving point (as above) in accordance with an instruction by the user.

10. Regarding claim 6, Nagamitsu discloses wherein the position indicating section indicates the position of the sound generating point which moves in accordance with an instruction from the user (user changes source position), and wherein the orientation control section identifies based on the indicated position of the sound generating point a progressing direction along which the sound generating point moves, and changes the orientation of the sound generating point to the identified progressing direction (orientation updated when source moved).

11. Regarding claim 7, Nagamitsu discloses wherein the position indicating section indicates the position of the sound generating point which moves in accordance with an instruction from the user (user changes source position), and wherein the orientation control section identifies based on the indicated position of the sound generating point a progressing direction along which the sound generating point moves, and changes the orientation of the sound generating point (orientation updated when source moved) to an angular direction making a predetermined angle with respect to the identified

progressing direction (changes require recalculation of physical layout for correct Impulse response calculation).

12. Regarding claim 8, Nagamitsu discloses reverberation apparatus for creating an acoustic effect of an acoustic space which is arranged with a sound generating point for generating a sound and a sound receiving point for receiving the sound which travels from the sound generating point to the sound receiving point through sound ray paths within the acoustic space, and for applying the created acoustic effect to an audio signal representative of the sound generated from the sound generating point, the reverberation apparatus comprising:

- a storage section (figure 2, item 13, head rotation) that stores a directional characteristic of a sensitivity of the sound receiving point for the received sound;

- a position indicating section that indicates a position of the sound receiving point (13, user position) and a position of the sound generating point (12, source position) , within the acoustic space on the basis of an instruction from the user;

- an orientation control section (13, incident direction) that changes an orientation of the sound receiving point when the position indicating section indicates change of either of the position of the sound receiving point and the position of the sound generating point (changes require recalculation of physical layout for correct Impulse response calculation);

- an impulse response determining section (21) that determines an impulse response for each of the sound ray paths along which the sound emitted from the sound



generating point travels to reach the sound receiving point, in accordance with the directional characteristic of the sensitivity for the received sound stored in the storage section and the orientation of the sound receiving point changed by the orientation control section; and

a calculation section (25) that performs a convolution operation between the impulse response determined by the impulse response determining section and the audio signal representing the sound generated from the sound generating point so as to apply thereto the acoustic effect.

13. Regarding claim 9, Nagamitsu discloses wherein the orientation control section identifies a direction (incident direction) to a given target point (source point or reflection point) from the sound receiving point at the position indicated by the position indicating section, and changes the orientation of the sound receiving point to the identified direction from the sound receiving point to the target point (column 6).

14. Regarding claim 10, Nagamitsu discloses wherein the orientation control section sets the target point to the sound generating point (as above) in accordance with an instruction by the user.

15. Regarding claim 11, Nagamitsu discloses wherein the orientation control section identifies a first direction to a given target point (source point or reflection point) from the sound receiving point at the position indicated by the position indicating section (user

position), and changes the orientation of the sound receiving point to a second direction making a predetermined angle with respect to the identified first direction (changes require recalculation of physical layout for correct Impulse response calculation).

16. Regarding claim 12, Nagamitsu discloses wherein the orientation control section sets the target point to the sound generating point (as above) in accordance with an instruction by the user.

17. Regarding claim 13, Nagamitsu discloses wherein the position indicating section indicates the position of the sound receiving point which moves in accordance with an instruction from the user (walks around room), and wherein the orientation control section identifies based on the indicated position of the sound receiving point a progressing direction along which the sound receiving point moves, and changes the orientation of the sound receiving point to the identified progressing direction (orientation updated when receiving point moved).

18. Regarding claim 14, Nagamitsu discloses wherein the position indicating section indicates the position of the sound receiving point which moves in accordance with an instruction from the user (walks around room), and wherein the orientation control section identifies based on the indicated position of the sound receiving point a progressing direction along which the sound receiving point moves, and changes the orientation of the sound receiving point (orientation updated when receiving point

moved) to an angular direction making a predetermined angle with respect to the identified progressing direction (changes require recalculation of physical layout for correct Impulse response calculation).

19. Regarding claims 17 and 18, the method claims 17 and 18 are rejected in an analogous manner to the apparatus claims 1 and 8.

20. Regarding claims 15 and 16, the program claims 15 and 16 are rejected in an analogous manner to the apparatus claims 1 and 8.

### ***Response to Arguments***

21. Applicant's arguments filed March 7<sup>th</sup>, 2008 have been fully considered but they are not persuasive.

22. Regarding applicant's arguments that the reference does not disclose controlling or changing the orientation of sound generating or receiving points, the fact that they disclose a sound simulating environment gives the user complete control of location and direction of each point.

23. In general, it is the examiner's position that material disclosed in the application and that disclosed in the Nagamitsu reference are similar, with the system of claim 1 and claim 8 simply choosing an origin of the coordinate system as the receiving and generating point respectively.

***Conclusion***

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS SUTHERS whose telephone number is (571)272-0563. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas Suthers/  
Examiner, Art Unit 2615

/Vivian Chin/  
Supervisory Patent Examiner, Art Unit 2615